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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/087,935	03/05/2002	Toshimitsu Kaneko	220374US2SRD	5274

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EXAMINER

SHAH, UTPAL D

ART UNIT PAPER NUMBER

2625

DATE MAILED: 07/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/087,935 ✓

Applicant(s)

KANEKO ET AL.

Examiner

Utpal D. Shah

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/5/2002.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

The application is presented here for examination.

Claims 1-18 have been examined.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 are rejected under 35 U.S.C. 102(b) as being anticipated by Driscoll, Jr. et al. (Driscoll) US patent number 5,067,162.

3. In regards to claim 1, Driscoll discloses a template matching method for searching a matching area having the highest correlation with a template including a reference point in a first image from a second image, (figure 15 and col. 6, lines 42-49, Driscoll discloses searching for the best match location (point having the highest correlation) using correlation calculations between the template and the fingerprint image.) the template matching method comprising:

calculating a difference between a corresponding point of the reference point in the second image and an estimated point of the reference point which is calculated by the template matching method; and (col. 16, lines 61-65, Driscoll discloses an expected position (corresponding reference point) for the reference or template in the image. Col.

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17, lines 1-14, Driscoll discloses finding the best match position (estimated point of the reference point) for the same template using the template matching method. Driscoll further teaches calculating the displacement (difference) between the expected point (corresponding point) and the best match point (estimated point).

determining at least one of parameters of the template matching, the parameters comprising the reference point, a size of the template and resolutions of the first and second images based on the difference. (col. 17, lines 1-14, Driscoll discloses determining one of the template matching parameters the best match location (reference point).)

4. In regards to claim 3, Driscoll discloses that calculating comprises:

calculating non-similarity or similarity between a first area including the corresponding point of the second image and a second area to which the first area is moved within a predetermined searching area within the second image, and (col. 17, lines 1-14, Driscoll discloses calculating highest correlation value (correlation calculates similarity between two objects) between reference section which includes the corresponding point and the verifying image, but within verify region surrounding the corresponding point.)

finding the difference using a plurality of non-similarity or similarity calculated with respect to a plurality of the second areas within the searching area. (col. 17, lines 3-14, Driscoll discloses calculating highest correlation value (correlation calculates similarity between two objects) within the verify region, between reference image and verifying

image. Note that examiner interprets this as calculating similarity between reference image and verifying image at plurality of areas, as the reference image is moved around within the verifying region to determine best match location. Driscoll further teaches determining displacement (difference) between expected position and best match location.)

5. In regards to claim 4, Driscoll discloses a method wherein the determining comprising determining the reference point based on a reference candidate whose difference is minimum from a plurality of reference point candidates. (col. 17, lines 60-65, Driscoll discloses the reference section, which includes the reference point, is classified as a hit if it has a high correlation value and low displacement (meaning where the difference is minimum).)

6. In regards to claim 5, Driscoll discloses a method wherein the determining comprises finding a maximum size of the template giving a smaller difference than a threshold value. (col. 18, lines 38-40, Driscoll discloses that if the best correlation value is not high enough (The examiner interprets 'high enough' as a threshold, even though Driscoll does not expressly disclose a specific number. 'High enough' indirectly indicates that there is a threshold.) then the size is increased until the best match location is found.)

7. In regards to claim 6, Driscoll discloses a method wherein the determining comprise finding a minimum resolutions of first and second image giving a smaller difference than a threshold value. (col. 18, lines 38-40, Driscoll discloses that if the best correlation value is not high enough (The examiner interprets 'high enough' as a threshold, even though Driscoll does not expressly discloses a specific number. 'High enough' indirectly indicates that there is a threshold.) then the size is increased until the best match location is found. Examiner notes that resolution of an image depends on its size, so indirectly, Driscoll discloses determining resolution of the first and second image.)

8. Claims 7 and 9-12 recite limitations that are similar and in the same scope of invention as to those in claim 1 and 3-6 above in paragraph 3-7 and combinations thereof; therefore, claims 7 and 9-12 are rejected for the same rejection as described in claims 1 and 3-6.

9. Claims 13 and 15-18 recite limitations that are similar and in the same scope of invention as to those in claim 1 and 3-6 above in paragraph 3-7 and combinations thereof; therefore, claims 13 and 15-18 are rejected for the same rejection as described in claims 1 and 3-6.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. Claims 2,8 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over US patent 5,067,162 by Driscoll Jr. et al. (Driscoll), as applied to claim 1, in view of US patent 5,867,584 by Hu et al. (Hu).

In regards to claim 2, Driscoll discloses all the claimed limitations of claim 1, as discussed above in paragraph 3 and incorporated herein by the reference.

Driscoll does not expressly disclose a method wherein the difference comprises an upper bound of average distance between the corresponding point and the estimated point.

However, Hu discloses a method wherein the difference comprises an upper bound of average distance between the corresponding point and the estimated point. (col. 5, lines 50-67, Hu discloses calculating the average intensity distance between each pixel of the object window and a test window. Col. 6, lines 9-15, Hu discloses the intensity distance as maximum (upper bound) of the intensity distance.)

Driscoll & Hu are combinable because they are from the same field of endeavor i.e. template matching. (col. 3, lines 58-63)

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the Driscoll with the teachings of Hu.

The motivation for doing so would have been to at least automatically and accurately locate objects in images. (col. 2, lines 37-40)

Therefore, it would have been obvious to combine Driscoll with Hu to obtain the invention as specified in claim 2.

13. Claims 8 and 14 recite limitations that are similar and in the same scope of invention as to those in claim 2 above in paragraph 12 and combinations thereof; therefore, claims 8 and 14 are rejected for the same rejection as described in claim 2.

Conclusion

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Utpal D. Shah whose telephone number is 571-272-8568. The examiner can normally be reached on M-F (9 AM - 5:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on 571-272-7453. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. After July 15, 2005 the new fax number is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Utpal Shah
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DANIEL MIRIAM
PRIMARY EXAMINER